

The following reports were read and referred to the Publication Committee:—

REPORT OF THE PRESIDENT FOR THE YEAR  
ENDING NOVEMBER 30, 1878.

The progress of the Academy during the year has been satisfactory. The means to facilitate investigations in the several departments of natural science have at no time been greater since the foundation of the Society. Valuable additions to the library have been made by exchange of the Academy's publications for those of kindred societies at home and abroad, by the generosity of authors and editors, and largely by the I. V. Williamson Library Fund. Most of the collections of natural objects have been considerably augmented.

Materials awaiting investigation and study are abundant, and the records of information relative to every department of natural history are not more numerous in any library in the country. All these materials and means of study are accessible to those interested in the pursuit of knowledge of natural objects. It is no fault of the Academy's organization or policy that the number disposed to avail themselves of these advantages is not greater than it is. All are invited, and all who accept the invitation to work in the building are cordially welcomed, and the resources of the museum and library are opened to them.

The financial condition of the Society has somewhat improved. The necessary expenses exceed the income of the year about five hundred dollars.

The present policy, which it is hoped will be always maintained, is to conduct the affairs of the Academy in such manner that it will remain free from debt, as it is now.

During the year 28 members and 32 correspondents have been elected, and during the same period the record shows that four members have resigned; 16 members and 11 correspondents have died, so that only 8 members and 21 correspondents have been added to the membership of the Society. The income of the Academy is to some extent dependent upon the number of its members.

Thanks to the generosity and public spirit of Mr. I. V. Williamson and the late Dr. Thomas B. Wilson, a library fund has been established which is sufficient to procure almost all new and current publications; though not enough to supply every standard work which naturalists may desire to consult. It may be said, however, that it assures a continuous increase of the library at a rate of about five hundred volumes a year.

An adequate publication fund is very much needed. Including the bequests of Mrs. Elizabeth P. Stott, Augustus E. Jessup, and Isaac Barton, the total income applicable to publication is about \$700.

It is believed that the prosperity of the Academy depends largely on its publications, and without them it would be unknown and virtually cease to exist in a scientific sense. They constitute a bond of relationship with societies engaged in like pursuits in all parts of the world and make the Academy known to them and them to the Academy. Indeed the Journal and Proceedings are the vocal organs of the Society through the functions of which it holds communication with the naturalists in all civilized countries. Consisting chiefly of records of discoveries in natural science made by members of the Society, they contribute to the history of scientific progress. The respectability of the Academy is measurably dependent on the importance of the discoveries announced in these publications; and their quality is the criterion of the Academy's scientific character at home and abroad. Their value and importance cannot be precisely reckoned in money's worth. They encourage students to labor, for it may be safely conjectured that few would engage in original investigations without assurance of a way to make known their discoveries to the scientific world.

Besides, they bring to the library very essential and important additions. During the past year the Academy has received in exchange periodicals and serials from 45 editors and from 240 societies, or 235 publications, which, if the Academy ceased to publish, could not be procured for less than about \$1400.

The Publication Committee carefully scrutinizes all expenditures, and spares no pains to secure economy in the execution of the work assigned to it. Important communications are sometimes rejected solely for want of means to publish them. Some authors contribute the plates necessary to illustrate their de-

scriptions rather than their work should not appear under authority of the Academy's imprint; but there are many students whose financial condition will not permit them to give more than the results of their own labor.

The manufacture of the *Journal of the Academy* and of the *Proceedings of the Academy* costs, on an average of the past three years, \$1740 a year. This sum includes the expense of paper, printing, plates, and binding. The authors of the papers published receive no pecuniary compensation for their labors. The difference between the sum (\$700) applicable to publishing and the actual cost, is derived from the fees of a small number of subscribers and the general income of the Academy, and in amount is equal to one-fourth of the annual revenues, exclusive of trust and special funds.

Besides the "Journal" and "Proceedings" publications of another kind should be made from time to time for the benefit of those students who reside at distant points, as well as of those who live in the city. It is not entirely satisfactory to possess manuscript catalogues of the library and of the collections. It is desirable to have a descriptive or indicative list of specimens in each class of the several collections in the museum, so arranged that a naturalist might be at once informed by reference to it whether the object he wishes to inspect is in the Academy, before seeking it in the museum. Such lists carefully prepared and printed, to be furnished on application on such terms as may be considered proper, would make known what is in the museum as well as its deficiencies, and indirectly prompt friends of the institution at a distance to assist in supplying desiderata. The preparation and publication of lists of the kind would be expensive; but the advantages flowing from them to the Academy and to naturalists would fully compensate their cost.

It is believed that \$2500 a year, economically expended, would not be more than enough to secure the publication of all matter that the Academy should issue under its imprint. It is therefore earnestly recommended that an effort be made to increase the funds applicable to this object sufficiently to yield an annual revenue of \$2500; that is, an addition of \$1800 to the yearly income appropriate to publication.

Relieved of the necessity to contribute to the cost of publication it is probable that the general income of the Academy will

be sufficient to defray the current expenses for salaries, warming, lighting, freight, postage, stationery, etc., even after the completion of the edifice.

Attention is respectfully invited to the necessity of establishing a curators' or museum fund of five or six hundred dollars a year, to be expended for mounting, properly displaying, and preserving objects in the various collections, and procuring whatever may be necessary to their completeness.

Fees of initiation and life-membership might be appropriated to this purpose. In the course of a few years the amount necessary to create the fund required would be accumulated, and then those same resources could be made available for some other necessity.

Deficiencies and defects now noticeable in the museum are in a great degree fairly ascribable to the want of a curators' fund. A brief reference to its present aspect may possibly make this apparent.

The museum is the aggregate of gifts received in the course of the past sixty-six years from very many generous persons, some giving one or more specimens and some entire special collections. Those departments having numerous and enthusiastic votaries have grown greatly, while those which have attracted comparatively few students are very slenderly furnished. This inequality of representation of the several classes of objects is inevitable in this museum, which originated in and is entirely dependent upon individual bounty for its formation; and, until within the past three years, upon unpaid labor exclusively for its arrangement, and the suitably mounting and display of specimens. Yet, in spite of a want of sufficient means for the purpose, the thousands of valuable and rare objects collected here are carefully protected against the ordinary causes of deterioration and loss. Fragile and perishable specimens, which were presented more than sixty years ago, are still quite perfect. The richness of some of the collections in unique and type specimens, placed here from time to time since the early days of the institution, is well known. In this connection no complaint can be reasonably made. No pains have been spared to secure the preservation of specimens placed in charge of the curators, and no loss can be fairly ascribed to their want of attention or care.

Had there been power at the outset to form a museum on a

carefully matured plan to be realized under competent direction, all its departments, we may reasonably conjecture, would have been provided for alike. Or, had there been at the commencement of the formation of this museum by individual contributors, each according to his taste or opportunity, a curators' fund applicable to the purchase of specimens required in the representation of a class or order, there would be no inequality in the several departments noticeable at this time. And it seems not extravagant to suppose that the creation of a curators' fund at this time would furnish the means to supply all deficiencies in the course of a few years.

A museum, according to the significance of the term, is a place of instruction. To render it effective to this end all the collections in it are required to be arranged according to the accepted systems of classification, and all the specimens illustrative of the class, order, or family to which they belong, to be appropriately located as far as practicable in an unbroken, continuous series, so that their relations may be readily observed.

This is illustrated in the cabinet of minerals, which has been arranged in accordance with an accepted system of classification based on composition. A student, by the aid of Dana's *Manual of Mineralogy*, may follow the arrangement from beginning to the end.

And with the assistance of Gray's *Manual*, a student may learn the accepted system of classification of plants in the botanical collections of the Academy, which are now so far arranged as to be available for study, thanks to the spontaneous labors of botanical experts of the Society.

But want of space has rendered such uniform arrangement of some of the other collections impracticable. The mollusca, for example, which are mostly represented only by their shells, cannot be arranged in a uniform series, including the soft parts of the animals which are necessarily preserved in alcohol, unless waxen or *papier maché* models of them were substituted in their place, a substitution which is expensive and unattainable without money.

Want of space is an insurmountable barrier to the location of the mammals, large and small, in an unbroken series according to a system of classification, each in its relative position, even if it were essential that mastodons and mice should stand on the same line of view.

It will be admitted by all that the museum is excessively crowded. At least one-third of the cases on the Wilson gallery might be taken away, and then at least one-half of the birds could be removed from the remaining cases advantageously to the appearance of the museum, as well to those taking first lessons in ornithology. At present this vast collection of birds is rather stowed than displayed in the cases.

One-tenth of the number of mounted birds judiciously selected and artistically arranged to occupy all the cases in which the twenty-six thousand specimens are now stowed—almost like things in a ship—would seem to general observers a more attractive and complete collection than it is at present. Ornithologists, however, for whose benefit the late Dr. Thomas B. Wilson devoted so much care and money to enlarge the Academy's collection of birds, regard the numerous representatives of each species in it to be a prominent feature of its value which distinguishes it among the most complete in the world. Good faith and respectful remembrance of Dr. Wilson's bounty require that the Academy should preserve it and endeavor to provide more space for its accommodation rather than withdraw specimens from the collection until it suitably fits the room given to it now.

Classification of objects and arrangement of them change under the influence of experience and scientific progress; and architectural construction and limited space may compel separation of affiliated collections and the location of parts of them in the museum out of their appropriate place in the accepted system of classification. Such displacements may be admitted to be blemishes in the arrangement of a museum without admitting that they are not excusable for reasons just stated. Such unavoidable defects of arrangement do not lessen the usefulness of the museum to students.

The continuous increase of the collections indicates that the building should be completed as soon as practicable. An application made to the Legislature of the State for aid in this connection failed. The committee of the Academy charged with the subject reported substantially, January 22, 1878, that it was unadvisable to press the matter further at that time and was discharged.

During the past year valuable additions to the collections have been made. Specimens pertinent to ethnics have become so numer-

ous that they fill a room on the entresol floor in the southeast end of the building, as well as a series of flat cases placed around the middle room at the east end of the first floor. These collections, which are very valuable, prove that interest in ethnology has greatly increased among the members of the Society during the past few years. In popular estimation no department of natural science is more important or more attractive. It is certainly worthy of the fostering care of the Academy in the future.

An arrangement of the conchological cabinet in such manner that fossil species shall be appropriately intercalated in it, want of space in the museum renders impracticable at present, although the propriety of such an arrangement is daily becoming more apparent to proficients in conchological studies.

It is conjectured that large and highly interesting collections would come to the Academy if it could afford sufficient space for their proper display and study. Proprietors are rarely willing to give valuable collections or specimens to any institution known to lack capacity to exhibit them in a suitable manner.

Considerable collections and valuable specimens contributed to the Academy by exhibitors at the International Exhibition of 1876, and confided to the care of the Smithsonian Institution for delivery, will come to us after the contemplated building for the National Museum at Washington has been completed. At present they are mingled with gifts to that institution from the same source, and will remain packed as they were for transportation hence to Washington until a suitable place for their display has been provided.

The growth of the museum and the progress of the Academy, as well as that of natural science, would be accelerated by the immediate completion of the building according to the plans. It is not extravagant to suppose it possible that the collections made by the geological surveys of the State of Pennsylvania might be confided to the care of the Academy, if that part of the edifice which has been intended to contain only objects illustrative of the natural history of Pennsylvania were now ready for their reception. Collections of the kind while packed in boxes are of no value; but when suitably mounted, labelled, and displayed they become continuously important to successive generations of students and observers; and if placed in proximity to a

great general collection and a large and appropriate library, their value is enhanced.

Earnest desire to realize, without loss of time, plans devised for benevolent purposes, may lead to the adoption of measures which experience will prove to have been unwise.

Assuming it to have been admitted that the building should be finished, a question for the Academy to decide is whether it is prudent to accept the inconveniences and losses incident to delay, and rely exclusively on the benefactions of intelligent and generous citizens to complete the work which they have so admirably begun, rather than seek an appropriation from the State treasury, which may be obtained, if at all, under conditions that may prove to be embarrassing or unsatisfactory hereafter.

Similar institutions are largely assisted from the public treasuries of the States in which they are. The Congress of the United States appropriates annually \$20,000 to support the National Museum at Washington under the direction of the Smithsonian Institution. The Legislature of New York annually votes as much to support the State Museum at Albany, and it has appropriated nearly three-quarters of a million of dollars towards erecting a suitable building in the city of New York for the American Museum; and the Legislature of Massachusetts has voted more than a quarter of a million to aid the Museum of Comparative Zoology of Cambridge.

With such precedents in view, and considering that the Academy is eminently charitable in all its uses and purposes and educational in its character, and that all the work of its members is gratuitous, the worthiness of the Society to liberal and substantial aid from the State is scarcely to be doubted.

At this time the building fund consists of only \$2344. More than a hundred times this sum is probably needed.

The prospect of completing the building through the bounty of individuals within a reasonable time is not now encouraging, but may not be absolutely hopeless.

It is unfortunately true that the stagnation of business generally during the past three or four years has reduced incomes, and the times are not propitious to obtain such large contributions as were generously bestowed in the early days of this enterprise, but it is also probably true that the proportion of well-to-do and opulent citizens of liberal disposition is unchanged. Some may be found willing to give substantial aid to the work; and, as the cost of fire-



proof construction is less now than it was when the corner-stone of this building was laid, the aggregate sum necessary to be raised will be proportionately less.

The obstacle in the way of this enterprise is not in want of ability in the community to accomplish it in spite of its great cost, but in the indifference of the public generally to the progress of scientific pursuits among us. It is probable that the existence of the Academy is unknown to thousands of our citizens; and of those who are aware of its existence thousands have never been inside of its doors, although it is among the institutions in the prosperity of which intelligent Philadelphians are supposed to be interested.

The value of knowledge of natural objects, and of the laws which control their structure and relations, is duly appreciated chiefly by naturalists and students of nature; those of the population who are engaged in the numerous avocations affiliated more or less closely with commerce, the useful arts, including architecture and manufactures of all kinds, are generally heedless of this kind of information. They are mostly allured to the imitative and decorative arts, painting, sculpture, music, the drama, of various grades of quality. To persons of these classes, who constitute the great majority of the population, and include most of the opulent people of the city, natural science is unattractive. They regard the pursuits of naturalists to be merely the harmless, dull, uninteresting amusements of stupid people; and some look upon their labors as dangerous to religious belief: an erroneous notion, which reminds us of the famous trial which took place at Athens more than twenty-two centuries ago. The Athenian judges found their fellow-citizen Socrates, the wisest man of his day, guilty "of busying himself with prying into things under the earth and in the heavens, and making the worse appear the better reason, and teaching the same to others; and of not believing in the gods acknowledged by the state, but in other new divinities," and put him to death.

The spirit manifested by those Athenian judges has not entirely disappeared. The same intolerance of investigation of natural things, for the sake of ascertaining truth, has existed in the popular mind from the days of Socrates to the present, though now vastly abated and restrained.

The most prominent wants of the Academy and the obstacles to their removal have been stated, not in expectation that they

may be very soon supplied, but under a belief that it is proper that members should be informed of their nature, in order that they may be considered, and such measures as in their judgment may seem expedient be adopted.

The annual reports of the curators, of the treasurer, of the secretaries, librarian, and several sections, show the progress of the Society during the year.

Professor J. Gibbons Hunt is delivering a course of very interesting and instructive lectures before the Biological and Microscopical Section, on the use of the microscope in the study of cryptogamic botany. They are heard with great pleasure. The course was commenced in October, and will be continued until April or May next.

The number of persons who consult the library, it is believed, has increased very much.

The average attendance at the stated meetings of the Academy is 32; but only about 4500 persons have visited the museum through the year. This fact suggests that in this city's population of 800,000, the taste for natural history is not very general, and that the uninstructed man here, as well as everywhere, is more interested in viewing specimens of his own genus and representation of their exploits by artists and poets than in samples of any other part of the creation. A museum which contains representatives of almost every kind of bird and shell in the whole world, besides extensive collections in all departments of natural history, it is supposed, should be attractive to great numbers of people; but experience shows that only those who are intelligently curious find the pleasure of visiting it worth the ten cent fee of admission.

Let us not be discouraged by this experience. The importance of special knowledge is slowly recognized. The proportion of educated and cultivated people in the city's population is very much greater now than it was a century ago, and among them the value of all the natural sciences is more widely and justly appreciated. It is more generally believed that seeking to know precisely what is knowable in any and every direction is of interest and value to the community, and that such pursuits are worthy of substantial encouragement.

The whole is respectfully submitted,

W. S. W. RUSCHENBERGER,

*President.*